

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA**

JIMMY DALE PALMER, et al.,)	
)	
)	Case No: 03-CV-0498-CVE-PJC
Plaintiffs,)	
)	
v.)	
)	Consolidated with:
ASARCO INCORPORATED, et al.)	
)	Case No: 03-CV-0565-CVE-PJC
)	Case No: 03-CV-0566-CVE-PJC
Defendants/Third-party Plaintiffs,)	Case No: 03-CV-0567-CVE-PJC
)	Case No: 03-CV-0569-CVE-PJC
)	
v.)	
)	
UNITED STATES OF AMERICA, et al.)	
)	
)	
Third-Party Defendants.)	

OPINION AND ORDER

Now before the Court is Defendants' Motion to Exclude the Expert Testimony of Kirk Brown, Ph.D. and Brief in Support Thereof (Dkt. # 531). Kirk Brown, Ph.D. ("Dr. Brown"), is an agronomist and soils scientist, and he is serving as plaintiffs' environmental fate and transport expert in this case.¹ Defendants ask the Court to exclude his testimony in whole or in part, because they claim his expert testimony is unreliable. Specifically, defendants assert that Dr. Brown provided opinions on lead dispersion without performing site-specific modeling to prove each defendant's

¹ Defendants do not challenge Dr. Brown's qualifications to testify. Dr. Brown was formerly a professor of soils and crops sciences at Texas A&M University, and he still serves an emeritus professor. He has also participated in research projects for the Environmental Protection Agency ("EPA") on the fate and transport of contaminants. The Court finds that Dr. Brown is qualified to testify about environmental fate and transport and his expert testimony should be allowed if his proposed expert testimony satisfies the reliability and relevancy requirements of Fed. R. Evid. 702.

contribution to plaintiffs' lead exposure. Plaintiffs respond that Dr. Brown reached his opinions using a reliable methodology and his causation opinions, based on the comingling of chat from defendants' mining operations, are relevant to issues raised by plaintiffs' tort claims.

I.

Dr. Brown was originally hired as an expert witness in Cole v. Asarco, Inc., 03-CV-327-GFK-PJC (N.D. Okla.), and he submitted a report and affidavit in support of the plaintiffs' motion for class certification. The Court has allowed plaintiffs to designate the Cole report and affidavit for this case, and this has been a source of contention with defendants.² See Dkt. ## 341, 432. In his April 22, 2004 report, Dr. Brown offers seven expert opinions:

1. Lead contamination in Picher and Cardin, Oklahoma is the result of co-mingling of wastes from historical mining and milling operations.
2. The communities of Picher and Cardin, Oklahoma are built on lead mining residue.
3. Airborne dust from the chat piles and sediment ponds is an ongoing source of lead contamination on the properties throughout Picher and Cardin.
4. Residents who play, walk, or work on chat piles are tracking lead contaminated material into homes where people are further exposed.
5. Dust from chat piles and yards gets into homes and causes elevated lead concentrations in household dust.
6. Lead in the soil and house dust is the major source of contamination contributing to the elevated blood lead levels in the children living in Picher and Cardin.
7. Property within the communities of Picher and Cardin has been damaged and there is continuing damage due to wind blown, lead contaminated dust.

² The Court has provided a detailed history of Dr. Brown's expert disclosures in a separate opinion and order. Dkt. # 654 (prohibiting plaintiffs from using Dr. Brown's Cole rebuttal report and June 14, 2007 affidavit). However, plaintiffs may use Dr. Brown's original expert report from Cole and his May 27, 2005 affidavit to support his expert opinions in this case.

Dkt. # 531, Ex. A, at 1. In his May 27, 2005 affidavit, Dr. Brown submitted additional opinions in response to the expert reports of defendants' experts on environmental fate and transport, Peter Drivas, Ph.D., and Gale Hoffnagle:

14. It is my opinion that the residents and children in the communities of Picher and Cardin continue to be routinely exposed to elevated concentrations of lead as a result of wind-blown dust. The principal route of exposure for children under age six is through ingestion, not inhalation of dust. The ingestion of dust occurs as a result of contact between the dust and the child's hands, feet or objects and the insertion of the dust contaminated hands or objects into the child's mouth.

15. Deposition of wind-blown dust occurs both indoors and outdoors, and as such, provides a source of ongoing lead contamination not only to yards, gardens, driveways, and roads, but also to all buildings, both residential and commercial.

16. Even after the remediation of residential yards and high access areas, there is sufficient lead remaining in the chat piles and tailing ponds to recontaminate all of the residential properties thus making it unsafe for children to live in the communities of Picher and Cardin.

17. Chat piles, tailing pond residues, and mining wastes continue to erode and act as continual sources of wind-blown, lead-laden dust (Gerberding, 2004). Other than the complete remediation of chat piles and tailings ponds, I know of no way to adequately eliminate the source of lead in this dust. These wastes will continue to act as sources of lead, which results in personal injury and property damage until they are remediated.

Id., Ex. B, at 3.

When plaintiffs' engaged to Dr. Brown as an expert, they asked Dr. Brown to prepare his opinions based on a causation standard enunciated by Judge Sven Erik Holmes in Herd v. Asarco, 01-CV-891-JOE-PJC. In Herd, Judge Holmes stated:

In this case, it is alleged that lead-laden dust blew from various Defendants' chat piles and tailings ponds and landed on property in Picher. Once the lead-laden dust reaches the air stream, it is impossible to trace its precise source. The Court therefore finds that the alleged injury is indivisible and that the above legal principles regarding joint and several liability apply. To the extent Defendants argue that they are entitled to summary judgment on grounds that Plaintiffs have failed to allege facts that "trace" or "quantify" the lead-laden dust causing the alleging nuisance in

this case as to each individual Defendant's chat pile(s) or tailing pond(s), the Court finds that, under the facts present here, such tracing or quantification is not required.

Herd, Dkt. # 575, at 24.³ This theory of causation is based on the assumption that lead from different mining operations was comingled during the milling process. The Herd plaintiffs were able to show that it would be difficult, if not impossible, to trace the amount of each defendant's contribution to each plaintiff's lead exposure, and Judge Holmes permitted the case to proceed based on this theory. In this case, plaintiffs assumed the Herd causation standard would apply, and they instructed Dr. Brown to prepare his expert report accordingly.

When preparing his original report, Dr. Brown did not perform any new air modeling but, instead, he relied on work performed by other experts. Specifically, Dr. Brown referred to the site-specific air modeling of David Sullivan. Sullivan originally prepared his modeling for use in Holder v. Asarco, 04-CV-564-CVE-PJC (N.D. Okla.). At the time Dr. Brown prepared his report, he believed that Sullivan correctly applied the EPA's Wind Erosion Equation ("the Equation"), and he claims that he double-checked the factors that Sullivan input into the Equation. However, in Holder, the Court excluded Sullivan's application of the Equation, because Sullivan's results were

³ The issue of causation will clearly not be resolved in the context of a Daubert motion, but plaintiffs rely heavily on the causation ruling in Herd to support Dr. Brown's testimony. In response to Doe Run's motion for summary judgment, plaintiffs argue that Doe Run is precluded from rearguing causation, because the parties are bound by Judge Holmes' ruling under the doctrine of issue preclusion. Dkt. # 589, at 14. In the alternative, plaintiffs claim that Dr. Brown should be permitted to submit a new expert report if the Court decides to apply a different theory of causation. Id. at 21. The Court addressed this latter argument in its earlier opinion and order (Dkt. # 654), and rejected it. The Court will issue its ruling as to the proper causation standard for this case when it rules on the motions for summary judgment.

unreliable.⁴ Sullivan's modeling was the only site-specific modeling reviewed by Dr. Brown when drafting his original report. Plaintiffs assert that Dr. Brown's opinions on causation are also supported by reference to a study by M. L. Abbott, cited as *Air Dispersion Modeling of Mine Waste in the Southeast Missouri Old Lead Belt*, Idaho Nat'l Engineering and Environmental Laboratory, Oct. 1999. The Abbott study is cited in Dr. Brown's report, but he failed to mention the Abbott study in his deposition when questioned about the basis for his opinions. Dkt. # 531, Ex. A, at 16. Abbott used the fugitive dust model to calculate an emission rate from chat piles in a former mining district in Southwestern Missouri. Dr. Brown has not identified any other modeling that he reviewed before drafting his expert report.

II.

In Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), the Supreme Court held that district courts must initially assess the admissibility of expert testimony under Fed. R. Evid. 702. In Bitler v. A.O. Smith Corp., 400 F.3d 1227 (10th Cir. 2005), the Tenth Circuit discussed the role of district courts when considering a Daubert challenge. First, the court should make a preliminary finding that the expert is qualified to testify. Next, the proponent of expert testimony must establish that the expert used reliable methods to reach his conclusion and that the expert's opinion is based on a reliable factual basis. The Tenth Circuit cited four factors that district courts should apply to make a reliability determination:

⁴ The Court found that Sullivan unreliably calculated the climactic factor, also known as the C factor, when running the Equation. Instead of dividing the C factor by 100, Sullivan used a whole number. This inflated Sullivan's results by a factor of 100. Sullivan believed this was a permissible method under the circumstances, but the Court excluded this aspect of Sullivan's testimony as unreliable. Holder, Dkt. # 751, at 2-7.

(1) whether a theory has been or can be tested or falsified; (2) whether the theory or technique has been subject to peer review and publication; (3) whether there are known or potential rates of error with regard to specific techniques; and (4) whether the theory or approach has “general acceptance.”

Id. at 1233 (citing Daubert, 509 U.S. at 593-94). The Tenth Circuit was clear that “a trial court’s focus generally should not be upon the precise conclusions reached by the expert, but on the methodology employed in reaching those conclusions.” Id. In other cases, the Tenth Circuit has emphasized that any analytical gap in an expert’s methodology can be a sufficient basis to exclude expert testimony under Daubert. Trucks Ins. Exchange v. MagneTek, Inc., 360 F.3d 1206, 1212-13 (10th Cir. 2004); Goebel v. Denver & Rio Grande Western R. Co., 346 F.3d 987, 992 (10th Cir. 2003). Under Daubert, “any step that renders the analysis unreliable . . . renders the expert’s testimony inadmissible. This is true whether the step completely changes a reliable methodology or merely misapplies that methodology.”” Mitchell v. Gencorp Inc., 165 F.3d 778, 783 (10th Cir. 1999) (citing In re Paoli R.R. Yard PCB Litigation, 35 F.3d 717, 745 (3d Cir. 1994)).

III.

Defendants raise several arguments to exclude Dr. Brown’s testimony: (1) Dr. Brown did not perform his own testing and his review of documents related to Tar Creek does not provide a reliable basis for expert testimony; (2) Dr. Brown should not be permitted to testify that the activities of every defendant harmed every plaintiff; (3) Dr. Brown heavily relies on air dispersion modeling by David Sullivan, Ph.D., that was excluded in Holder, and Dr. Brown’s opinions on environmental fate and transport should be excluded; (4) the Court should prevent Dr. Brown from testifying about plaintiffs’ ingestion of lead, because that issue is beyond the scope of his expertise; and (5) Dr. Brown’s opinions will not assist the trier of fact and should be excluded under Fed. R. Evid. 702. Plaintiffs respond that Dr. Brown’s opinions on the sources of lead contamination are reliable and

relevant to this case, even though Dr. Brown' opinions were originally prepared to support plaintiffs' motion for class certification in Cole.

A.

Defendants' generally argue that Dr. Brown's opinions are unreliable because he did not perform his own testing to determine the amount of lead traveling from chat piles to the nearby towns of Picher and Cardin. Instead, Dr. Brown relied on air modeling and site-specific studies prepared by other experts. Defendants assert that this is not "real science," because there is no way to verify the factual basis for Dr. Brown's opinions and there is no known error rate for this type of methodology. The lack of testing can certainly be a factor in a court's decision to exclude expert testimony, but lack of testing is not ordinarily an independent basis to exclude expert testimony if the expert has a sufficient factual basis for his testimony. See Bitler, 391 F.3d at 1123 ("Thus, because testing is not necessary in all instances to establish reliability under Daubert, and because it is not required by the particular factual circumstances of this case, we conclude the district court did not abuse its discretion in finding that the Bitlers' expert testimony is reliable.").

Defendants must first lay a foundation that original testing was required under the facts of this case before the Court will exclude expert testimony on this basis. If Dr. Brown intended to quantify each defendant's contribution to plaintiffs' alleged injuries, then Dr. Brown would have been required to conduct new testing. However, his opinions on causation are not so specific. Dr. Brown provides a factual foundation for his assertion that historical mining and milling operations resulted in the comingling of mining waste. Dkt. # 531, Ex. A, at 8-9, 12-13. In his report, Dr. Brown states that all homes within Picher and Cardin are close enough to a chat pile to be exposed to lead:

The eroded dust is dispersed to all properties and homes within both communities. Previous modeling efforts using the USEPA ISC, an air dispersion model, indicated that dust at this site could be transported at least 400 meters (1320 ft) from the source. All properties and homes within both communities are within 1400 ft of the closest chat pile, and 96.5 % of the homes are within 1320 ft (400 meters) of existing chat piles. Thus the co-mingled mining residues in the chat piles have and continue to act as a windblown source of contamination common to all properties, homes and other facilities within both communities.

Id. at 17. Previous modeling results support this opinion. Defendants are essentially asking the Court to determine whether Dr. Brown's opinions will enable plaintiffs to survive summary judgment, because they argue that the Herd causation standard should not govern this case. The Court will not make a preliminary assessment of whether Dr. Brown's testimony will enable plaintiffs to survive summary judgment. The sole issue before the Court is whether Dr. Brown has a reliable basis to testify that dust from chat piles could have reached plaintiffs' residences. Under these circumstances, defendants have not shown that the lack of original testing renders Dr. Brown's expert testimony wholly unreliable, and the Court will not exclude his testimony on this basis.

B.

Defendants argue that Dr. Brown should not be permitted to testify that lead from each defendant's mining operations reached each plaintiff. Defendants assert that this opinion was not disclosed in his expert report and, even if the Court finds that this opinion was timely disclosed, Dr. Brown does not have a reliable basis to offer this testimony. Plaintiffs respond that Dr. Brown had a sufficient factual basis to determine that lead from each defendant's operations was comingled, and this permits Dr. Brown to testify that lead from each defendant caused harm to each plaintiff. Plaintiffs rely on Judge Holmes' ruling on causation in Herd to suggest that the comingling of wastes can be used to link each defendant's activities to lead at each plaintiff's residence. In Dr. Brown's pre-Daubert disclosures, he did not perform any tracing to link the activities of each

defendant to the amounts of lead found at each plaintiff's residence.⁵ Dr. Brown has determined that each plaintiff lived close enough to a chat pile to be exposed to lead dust. Since the lead from each defendant's mining operations was comingled, plaintiffs' counsel argues that each plaintiff must have been exposed to lead from each defendant.

However, Dr. Brown's deposition testimony suggests that his opinion is far broader than plaintiffs' response suggests. During his deposition, Dr. Brown stated that he would testify that lead from each chat pile or tailing pond exists at every property in Picher and Cardin:

Q. You state that "The dust generated [sic] these sources is a source of lead contamination which is common to all properties, homes, schools, churches, daycare centers, and other facilities throughout both communities."

Is it your testimony that one source location is common to all properties, homes, schools, churches, daycare centers, and other facilities throughout the communities?

A. It's my testimony that each source location will contribute to the contamination at all properties.

Q. So it is your opinion that the tailing that is described on Brown 4, south of Property 1, that lead from that tailing pond -- from that tailing area exists at every property, every home, every school, every church, every daycare center and every other facility throughout Picher/Cardin area?

A. Yes. By this time, it would.

Q. And what is your basis for that statement?

A. Lead released in the dust at that location can blow in all directions and can be transported certainly far enough to reach all of the homes in the Picher community.

⁵ He did perform this analysis in his June 14, 2007 affidavit attached to plaintiffs' response to defendants' motion to exclude Dr. Brown. However, the Court has ruled that the June 14, 2007 affidavit and accompanying air modeling was not properly disclosed under Fed. R. Civ. P. 26, and Dr. Brown can not use the affidavit to support his testimony in this case. Dkt. # 654.

Dkt. # 531, Ex. D, at 198-99. He refused to quantify the amount of lead from any particular source, but he insisted that at least some lead from each chat pile was deposited at each plaintiff's residence.

This goes beyond the comingling of waste theory stated in his expert report, and Dr. Brown did not offer an opinion in his expert report or affidavit that waste from every source reached every plaintiff. While Dr. Brown can certainly testify about dust dispersion based on the modeling he reviewed, he has not done any testing or modeling to show that it is likely that lead from each chat pile has reached each plaintiff. This type of testimony would require site-specific modeling for chat piles in several locations across Ottawa County, Oklahoma, and this type of testimony goes beyond the non-excluded modeling upon which Dr. Brown relies.⁶ There is no indication that Sullivan attempted to trace the contribution of lead from each chat pile to each plaintiff as part of his air modeling. Instead, Sullivan calculated an annual emission rate from a typical chat pile using the Equation. Holder, Dkt. # 751, at 2-3. Assuming that Sullivan's emission was reliably calculated, this would still not provide Dr. Brown a reliable basis to conclude that lead from every chat pile reached every location in Picher and Cardin. Plaintiffs have extended the comingling theory to its breaking point and, in this instance, Dr. Brown has gone too far. Therefore, he will not be permitted to testify that lead from each chat pile reached each plaintiff's residence.

Defendants argue that Dr. Brown's opinions on fate and transport should be excluded in their entirety, because Dr. Brown does not have a reliable basis to quantify the deposition of lead from each defendant's chat piles. Essentially, defendants are asking the Court to craft a new causation standard when ruling on this motion. The Court has already stated that it will not rule on the

⁶ Dr. Brown did this type of modeling in his June 14, 2007 affidavit but, as discussed above, this affidavit has been excluded under Fed. R. Civ. P. 26(a)(2).

causation standard in the context of a Daubert motion and, even if the Court relied on a different causation standard, some of Dr. Brown's testimony would still be admissible. Dr. Brown has support for his opinion that lead waste was comingled, and he has reviewed modeling to show that lead from some of defendants' chat piles most likely traveled far enough to reach plaintiffs. This is sufficient to permit Dr. Brown to offer some of the environmental fate and transport opinions disclosed in his expert report.

C.

Defendants attack Dr. Brown's opinions concerning the amount of wind-blown dust in the air and how much of this dust reaches Picher and Cardin. Dr. Brown partially relies on Sullivan's now-excluded air modeling results to show that the annual emission rate of lead from a hypothetical chat pile is $1.5 \times 10^{-7} \text{ g/m}^2/\text{s}$.⁷ Defendants argue that actual air monitoring has shown that the amount of lead in the air is significantly lower than the National Ambient Air Quality Standard ("NAAQS) of 1.5 ug/m^3 . For example, an EPA study found that the quarterly average concentration of lead in the air was $.078 \text{ ug/m}^3$, and an air monitoring study sponsored by the Quapaw Tribe obtained similar results. Plaintiffs respond that Dr. Brown's air dispersion opinions are reliable even without Sullivan's modeling, because Dr. Brown has other reliable data to support his opinion that lead from chat piles reached plaintiffs. They also argue that NAAQS fails to take into account the number of particles coming from chat piles, particularly small particles that children could ingest,

⁷ According to plaintiffs, the Court did not find that Sullivan incorrectly calculated the climactic factor but, instead, the Court "determined that Sullivan failed to demonstrate that the selection of this wind erosion value ("C" factor) was based upon sound methodology." Dkt. # 573, at 11. Under the circumstances, it makes no difference whether the Court discusses Sullivan's application of the Equation as unreliable or incorrect because, either way, it still calls the reliability of Dr. Brown's testimony into doubt to the extent that he relied on Sullivan's testimony.

and it is irrelevant to the reliability of Dr. Brown's opinions whether or not the lead level in the air exceeds the NAAQS.

According to plaintiffs, Dr. Brown's partial reliance on Sullivan's modeling is not fatal to the admissibility of his expert testimony on environmental fate and transport. Even if the Court does not permit Dr. Brown to refer to Sullivan's air modeling, plaintiffs argue that Dr. Brown relied on soil measurements for each residence where plaintiffs lived and he has a reliable basis to conclude that wind speeds in excess of 20 mph can carry lead dust close to 1,000 meters. Dr. Brown also cites ambient air data from Ecology and Environment, Inc. (E& E) to establish the average concentration of lead particles in the air around Picher and Cardin. E&E used five monitoring stations placed downwind from chat piles, and determined that the average concentration of lead in the ambient air was 0.047 ug/m³. Plaintiffs cite Abbott's modeling of chat piles in southwestern Missouri as another basis to support Dr. Brown's conclusion.

Defendants' primary argument is that Dr. Brown heavily relied on Sullivan's air modeling when preparing his expert report, and the Court subsequently excluded this modeling in Holder. In Holder, defendants challenged the admissibility of Sullivan's expert testimony based on his application of the Equation.⁸ The Equation was used to determine the annual emission rate of a contaminant from a particular source and defendants challenged Sullivan's decision to set the climactic factor, C, equal to a whole number rather than a decimal. Sullivan input the C factor as 8.5 instead of 0.085, and defendants claimed that Sullivan's annual emission rate was inflated by 100 percent. The plaintiffs argued that Sullivan correctly used a whole number for the climactic

⁸ The Equation, stated in Sullivan's expert report in Holder, is as follows: annual emission rates (tons/acre/year) = $kaIKCL'V'$. The Equation is discussed in more detail in the Court's opinion and order partially excluding Sullivan's testimony. See Dkt. # 751, at 3 n.4.

factor, because Sullivan was applying the Equation on a local scale instead of a regional scale. The plaintiffs also argued that Sullivan underestimated other factors in the Equation, and his emission rate was reliable even if Sullivan incorrectly calculated one factor in the Equation. The Court excluded Sullivan's novel application of the Equation, because it was not supported by any peer-reviewed literature, had not been validated outside of the Holder litigation, and had not been generally accepted in the scientific community. Id. at 6-8.

In his report, Dr. Brown cited “[p]revious modeling efforts” supporting his opinion that dust could be transported at least 400 meters from a chat pile. Dkt. # 531, Ex. A, at 17. When defendants questioned Dr. Brown about the basis for this statement, he identified Sullivan's modeling as the only site-specific modeling available. Dr. Brown assumed that Sullivan applied a climactic factor of .085 instead of 8.5, and he admits that Sullivan's results would be 100 times too high if Sullivan used 8.5. Id., Ex. D, at 347-48. In Holder, the Court excluded Sullivan's air modeling precisely because he applied a climactic factor of 8.5, and it appears that Dr. Brown would find Sullivan's results to be inaccurate. See Holder, Dkt. # 751, at 6-8. Plaintiffs do not strongly argue that Dr. Brown should still be permitted to rely on Sullivan to support his opinions. Rather, they assert that Dr. Brown has a reliable basis to offer opinions on air dispersion without reference to Sullivan's modeling.

Dr. Brown believes that chat piles are the primary source of lead dust in Picher and Cardin. He states that chat piles are often 100 feet tall, but he notes that the surrounding landscape is relatively flat. He claims that the threshold wind velocity that causes dust to release from chat piles is 20 mph at 20 feet above the surface, and this exposure must last for at least one to four minutes.

Dr. Brown cites wind data from the weather station located in Joplin, Missouri⁹ to show that the predominant wind in Ottawa County comes from the south-southwest. The southerly wind accounts for 55 percent of the wind in Picher and Cardin but, during the other 45 percent of the time, wind comes from all different directions. The wind often exceeds 20 mph for enough time to dislodge particles of chat and carry towards plaintiffs' residences in Picher and Cardin. Construed in conjunction with Abbott's modeling showing how far wind-blown dust can travel from a chat pile, this provides Dr. Brown with a reliable basis to testify that lead from chat piles has reached plaintiffs. Defendants can point out the differences between the conditions in Tar Creek and chat piles in Southwestern Missouri, but that can be done on cross-examination. The Court finds that Dr. Brown should be permitted to testify about his theory that wind-blown dust has caused lead contamination in Picher and Cardin. However, the Court will not allow Dr. Brown to rely on or refer to Sullivan's modeling as a basis for his opinions when he testifies at trial.

D.

Defendants claim that Dr. Brown's expert report suggests that he intends to offer an opinion on medical causation, and this type of testimony is beyond the scope of his expertise. In his report, Dr. Brown opines that “[l]ead in the soil and house dust is the major source of contamination contributing to the elevated blood lead levels in the children living in Picher and Cardin.” Dkt. # 531, Ex. A, at 1. Defendants object to Dr. Brown's testimony on this issue, because they argue that the intake of lead should be discussed by a toxicologist or a medical expert, not an environmental fate and transport expert. Dr. Brown bases this opinion on the lead levels found in the soil at

⁹ According to Dr. Brown, this is the closest weather station to Picher and Cardin that collects data on wind direction and wind speed. Dkt. # 531, Ex. A, at 16.

plaintiffs' residences and hypothetical modeling showing an increased risk for lead ingestion based on these lead levels. Id. at 27. He admits that he has not actually looked at the blood lead levels for the specific plaintiffs in this case. However, he relies on the EPA's Integrated Exposure Uptake Biokinetic model ("IEUBK") to support his finding that plaintiffs face an increased risk of elevated blood lead levels. Plaintiffs respond that Dr. Brown is qualified to assess the risk of exposure to a contaminant, but there is no indication from his report that he will stray into the area of medical causation.

Dr. Brown's report suggests that he intends to offer an opinion on the uptake and intake of lead, and he did not refute this interpretation of his report at the Daubert hearing. Dr. Brown's report contains two separate opinions suggesting that plaintiffs face an increased risk of exposure to lead. Opinion 5 states that "[d]ust from chat piles and yards gets into homes and causes elevated lead concentrations in household dust." Id. at 22. This opinion contains one statement implying that household dust contributes to elevated blood lead levels, but the focus of this opinion is on increased concentrations of lead in the soil at plaintiffs' residences. However, in opinion 6, Dr. Brown clearly crosses into the realm of toxicology and medical causation. He states that "[l]ead in the soil and house dust is the major source of contamination contributing to the elevated blood lead levels in the children living in Picher and Cardin." Id. at 26. Plaintiffs deny that Dr. Brown will offer any testimony about the uptake or intake of lead, but the plain language of Dr. Brown's report suggests otherwise.

While Dr. Brown can testify how lead dust is transported from one place to another, the actual ingestion and elevation of blood lead levels is outside of his expertise. Toxicology is generally described as the study of how substances are absorbed into the body and the effect of

substances on the human body. United States v. Ledesma, 203 F.3d 836, *3 (10th Cir. 2000) (unpublished disposition)¹⁰; Jones v. Lincoln Elec. Co., 188 F.3d 709, 724 (7th Cir. 1999). Dr. Brown does not opine that any specific child had an elevated blood level based on IEUBK results but, instead, he discusses an increased risk for elevated blood lead levels on a community basis. The IEUBK results concern the intake of lead into the blood stream, even if only hypothetically, and Dr. Brown is not qualified to discuss this issue. It would be difficult for defendants to cross examine Dr. Brown about this opinion, because he could testify that the specific mechanisms of lead uptake and intake into the body is outside of the scope of his expertise.

Dr. Brown certainly has the expertise to discuss the movement of lead from one location to another and, relying on soil lead data, he can show that there is an increased risk of lead exposure to the residents of Picher and Cardin. However, Dr. Brown cites IEUBK modeling in an attempt to show that children will actually have elevated blood lead levels. This implies that plaintiffs have actually ingested the lead, and this goes well beyond the scope of his knowledge and experience as an expert in environmental fate and transport. Dr. Brown can testify about an increased risk of lead exposure for children living in Picher and Cardin, but he will not be permitted to testify that any child has had such exposure or has had an elevated blood lead level. The Court finds that Dr. Brown should be allowed to offer opinion 5 to the extent it is consistent with this Opinion and Order, but opinion 6 should be excluded.

¹⁰ The Court is aware that citation of an unpublished decision is disfavored. 10th Cir. R. 36.3. However, this unpublished decision has persuasive value on a material issue not addressed in a published opinion and it assists the Court in its disposition of this issue.

E.

Finally, defendants argue that Dr. Brown's testimony will not assist the trier of fact and it should be excluded under Fed. R. Evid. 702. Rule 702 provides that “[i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education may testify thereto in the form of an opinion” Defendants raise two separate arguments concerning the relevance of Dr. Brown's proposed expert testimony. First, defendants argue that Dr. Brown's opinions will not assist the trier of fact because he does not consider other causes of lead in Picher and Cardin aside from wind-blown lead dust. Second, defendants ask the Court to exclude Dr. Brown's opinion that plaintiffs have suffered an injury in the form of reduced property values.

Concerning the first argument, defendants have not cited any case law suggesting that Dr. Brown needed to rule out every possible cause of lead deposition before concluding that wind-blown dust was a leading cause of lead distribution. The Court may consider whether the expert has ruled out alternate explanations when determining whether an expert has a reliable basis for his opinion, but this does not require exclusion of expert testimony if the Court finds the expert reached his conclusions using reliable facts and methods. Claar v. Burlington Northern R. Co., 29 F.3d 499 (9th Cir. 1994); Schipp v. General Motors Corp., 443 F. Supp. 2d 1023, 1028 (E.D. Ark. 2006). In the context of expert medical testimony, when a range of possible causes for an injury exist, “an inference to the best explanation for the cause of an accident must eliminate other possible sources as highly improbable, and must demonstrate that the cause identified is highly probable.” Bitler, 400 F.3d at 1237. However, an expert's testimony is not unreliable simply because he can not

categorically rule out every possible cause of plaintiffs' injury. Jahn v. Equine Serv, PSC, 233 F.3d 382, 390 (6th Cir. 2000) ("In order to be admissible on the issue of causation, an expert's testimony need not eliminate all other possible causes of the injury"); United States Aviation Underwriters, Inc. v. Pilatus Bus. Aircraft, Ltd., 2006 WL 2844173 *4 (D. Colo. Sept. 29, 2006) ("An expert must show that other causes are improbable when conducting differential diagnosis, but '[t]his is not to say that an expert, in order to testify on causation, must be able to categorically exclude each and every possible alternative cause . . .').

Dr. Brown initially considered lead paint or smelter as other possible sources of lead contamination, but he ruled these causes out as part of his opinion that lead dust from chat piles is the primary source of lead considered. Dkt. # 531, Ex. A, at 15. He noted that lead paint was not a likely source of soil contamination, because the levels of cadmium and zinc in the soil indicated that lead originated from chat piles. He identified smelter as another possible source of lead, but he determined wind-blown dust from chat piles was a more reasonable explanation for the amount of lead in the soil. Although defendants may disagree with Dr. Brown's analysis, he did affirmatively rule out other causes of lead contamination. Defendants' challenge goes to the weight, not the admissibility, of Dr. Brown's testimony, and Rule 702 does not provide a basis to exclude Dr. Brown's testimony. Cooper v. Smith & Nephew, Inc., 259 F.3d 194, 201 (4th Cir. 2001); Westberry v. Gislaved Gummi AB, 178 F.3d 257 (4th Cir. 1999); Perkins v. Origin Medsystems, Inc., 299 F. Supp. 2d 45, 58-59 (D. Conn. 2004). Defendants can cross-examine Dr. Brown about his causation opinions, but defendants have not shown that Dr. Brown's failure to rule out every other possible cause of lead deposition aside from wind-blown dust requires the Court to exclude Dr. Brown.

Defendants ask the Court to exclude Dr. Brown's opinion on property damage (opinion 7), because this opinion is not relevant to any issue in this case. Plaintiffs' amended complaint does not expressly request damages for a decrease in property value. This opinion was prepared by Dr. Brown in support of plaintiffs' motion for class certification in Cole, because plaintiffs' counsel in Cole sought to certify a subclass consisting of all property owners within Picher and Cardin. At the Daubert hearing, plaintiffs' counsel acknowledged that property damage was not an issue in this case, and plaintiffs would not be seeking damages for a reduction in property value. The Court finds that Dr. Brown's property damage opinion is not relevant to any issue in this case, and it will be excluded under Fed. R. Evid. 702.

IT IS THEREFORE ORDERED that Defendants' Motion to Exclude the Expert Testimony of Kirk Brown, Ph.D. and Brief in Support Thereof (Dkt. # 531) is **granted in part** and **denied in part**. Dr. Brown may not testify that lead from each chat pile has reached each plaintiff's residence. Dr. Brown may testify that plaintiffs face an increased risk of exposure to lead, but he may not opine that any child in Picher or Cardin has had such exposure or has had an elevated blood level due to lead exposure. Property damage is not an issue in this case, and Dr. Brown may not testify that plaintiffs have experienced reduced property values.

DATED this 7th day of August, 2007.



CLAIRES V. EAGAN, CHIEF JUDGE
UNITED STATES DISTRICT COURT